CREATOR
VOLUME 29 NUMBER 4

A Universe of Love

For Your lovingkindness is great above the heavens,
And Your truth reaches to the skies.
Psalm 108:4

How far will love travel? Have you ever gone a long distance to visit a relative or a friend? If so, was your journey difficult? When I was a young boy, my family and I often drove an hour to my grandmother's house in the country. It seemed like forever to get there. After we got married, my wife and I lived in places far from home, and it took many hours to return for a visit. Why did we make the effort? Because we loved our families and dearly wanted to be with them.

Several years ago, a good friend of ours flew by plane from the United States to Papua New Guinea, a distance of 13,000 miles.[1] Her trip lasted 30 hours, one way. She traveled to New Guinea to see her parents and help dedicate their translation of the Bible into a local tribal language. Our friend sacrificed a great deal of time and comfort to show love in a very substantial way.

The Bible says that God is love (1 John 4:8), and Jesus is proof of that! He journeyed from Heaven to Earth to save His beloved from eternal death. Christ's love *is greater than the heavens themselves*.

1 Almost 21,000 kilometers

But how big are the heavens? How far did Jesus go to love us? Well, let's find out. We are going to take an imaginary trip through the universe. We will start here on Earth and move further and further outward, deeper and deeper into the cosmos. Along the way, we will discuss the many wonderful things our Lord Jesus Christ has created for the display of His Heavenly Father's glory. Our journey will be made in a make-believe spaceship, the *Creation Explorer*, moving at one-half the speed of light, which is very, very fast indeed.[2] Incidentally, the Holy Spirit placed a "speed limit" on light, which astronomers can use as a yardstick for gauging the incredible size of the universe. So if you're ready, let's start . . . three, two, one. BLASTOFF!

2 The velocity of light is 186,000 miles per second or 300,000 kilometers per second.

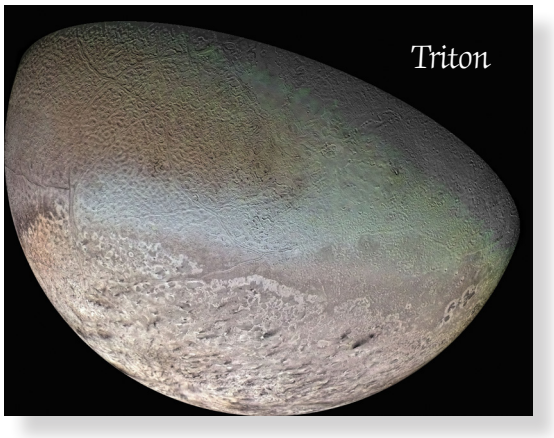
So Many Moons!

Two-and-one-half seconds into our space voyage, we pass the Moon. It appears to whizz by our porthole on the right. The lunar surface is one-quarter million miles from Earth, but it takes us only two shakes of a lamb's tail to get there. Back in 1969, astronauts traveled better than three days before reaching it. A pretend nonstop bicycle ride to the Moon (i.e., 24 hours a day) would see three years pass. So, it is not very close by Earth standards, yet our spaceship is so fast that if we blinked, we might miss seeing it altogether.

Of all the known moons, Earth's single moon is big but not the largest. This distinction goes to Ganymede (pronounced GAN - ah - meed), one of the many moons

of Jupiter. Mercury and Venus possess no moons, but the remaining planets have at least one or more. At last count, the total number of satellites[3] our Lord Jesus placed in the solar system was 293, with more than 80% orbiting Jupiter and Saturn.

When we consider the word "moon," we probably think of our own gray, airless, and cratered companion world. This description does not necessarily hold for other moons. (Our Creator Jesus is not boring!) Ten moons in the solar system possess an atmosphere—Titan, Triton, and Io being chief among them. Saturn's moon, Titan, is covered with a blanket of air thicker than Earth's. We wouldn't want to live on Titan, however, because its surface is -300°F (-185°C), and its smoggy atmosphere contains poisonous gases. Neptune's largest moon, Triton, boasts the coldest temperature ever recorded in the solar system—minus 400°F (-240°C)!

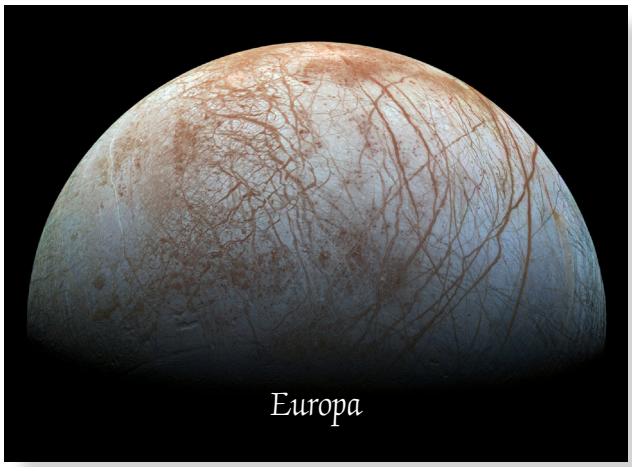


The two moons of Mars, Phobos and Deimos, resemble big potatoes. These "spuds" are tiny by lunar standards—the largest, Phobos, is only 17 miles (27 kilometers) across.

Jupiter has four large moons (Io, Europa, Ganymede, and Callisto) plus many smaller ones. Io (pronounced EYE - oh) is slightly bigger than our moon but has no craters. Sulfur regularly spews out of its 400 active volcanoes, covering the surface in orange-red hues resembling a pizza. Europa is encased in a thick sheet of ice; it is the smoothest world of our solar system. Frozen water also paints Europa with a beautiful blue sheen. Its surface is crisscrossed by countless fissures, giving it the appearance of a gigantic, cracked ice pond.

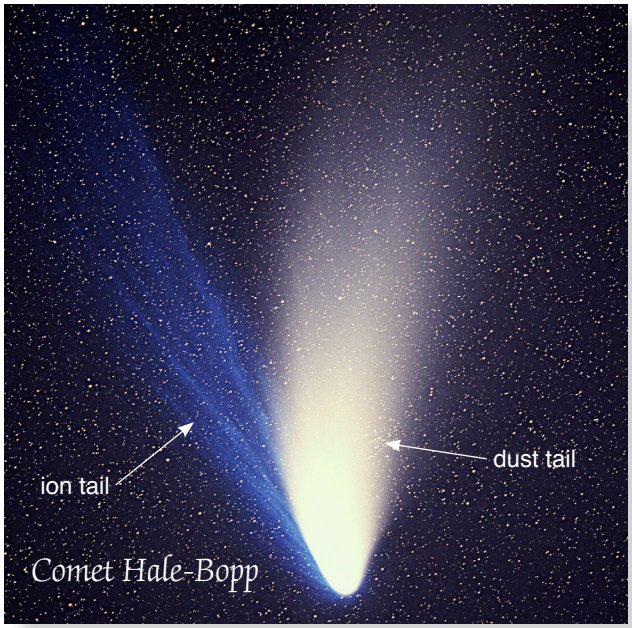
All these moons reveal the amazing creativity of Christ's Spirit.

3 "Satellites" is another name for "moons."


Europa

Dirty Snowballs

As our speedy rocket pierces the blackness of space, we spot a beautiful, large comet about 15 minutes from Earth. Careful observation reveals that the comet has two tails. All comets are balls of ice mixed with dust—like dirty snowballs, only a lot bigger. The icy part of a comet is called the *nucleus* and is usually a mile to several miles in diameter. Surrounding the nucleus is a much larger cloud of glowing gas and dust called the *coma* (pronounced KO - mah).



Comet Hale-Bopp

An ideal comet has one blue tail—the *ion tail*—millions of miles/kilometers long and a much shorter, white tail, known as the *dust tail*. Energy from the Sun heats the surface of a comet's nucleus, causing ice to evaporate. The Sun also produces solar wind—high energy protons and electrons racing outward at one million miles per hour (1,600,000 kilometers per hour). This solar wind creates the blue tail when it reacts with gas given off by a comet as it warms up. An ion tail acts like a "windsock," pointing in the direction that the solar wind is traveling. Dust particles are also released into space as the comet approaches the Sun. These freed particles form the comet's short, curved white tail (dust tail).

Other Worlds

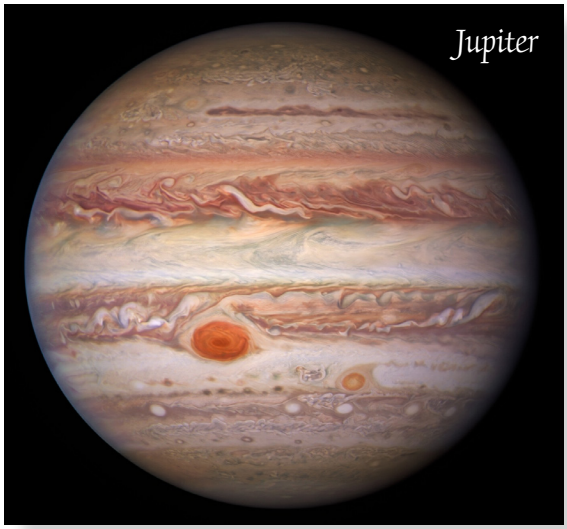
Colorful Jupiter, the largest planet in the solar system, is our next stop. It takes us one hour and ten minutes to get there from Earth. If we tried to land on this mammoth planet . . . well, we simply couldn't. Like the other giant planets—Saturn, Uranus, and Neptune—Jupiter is composed largely of gas. If a spaceship attempted a landing, it would first pass through an increasingly dense atmosphere, only to encounter a bizarre sea of boiling liquid hydrogen. There are no mountains or valleys, no deserts or volcanoes; just a lot of hot poisonous gas and liquid.[4]

Jupiter dwarfs our human pride by presenting us with a whole new scale of values. The planet is so big that if it were hollow, Creator Jesus could easily fit more than 1,300 Earth-size worlds inside. It would take 19 days in a nonstop airplane, flying 600 miles per hour, to circle Jupiter once. That's big—but our Lord is infinitely bigger!

God made Jupiter's magnetic field 20,000 times greater than Earth's. Its colossal magnetic pull creates invisible belts of intense radiation that are hundreds of times stronger than needed to kill a human

4 For an in-depth discussion of planets, please see the ***CREATOR Journal*** Volume 14 Number 2.

being. Even getting close to Jupiter is deadly business, so we will keep our distance and admire its beauty from afar. This alien world reveals yet another way that our Heavenly Father's untouchable holiness fills His Creation.[5]



The furthest of the original nine planets is Pluto. Not much was known about this enigmatic world until the New Horizons spacecraft flew by in 2015. Traveling at one-half the speed of light, it takes our *Creation Explorer* nine hours to get to this tiny planet.

Pluto's "heart" is a million-square-mile glacier of frozen nitrogen gas. The average temperature on its surface is -387°F or -232°C. (The coldest Earth gets is -144°F or -98°C on the East Antarctic Plateau.)

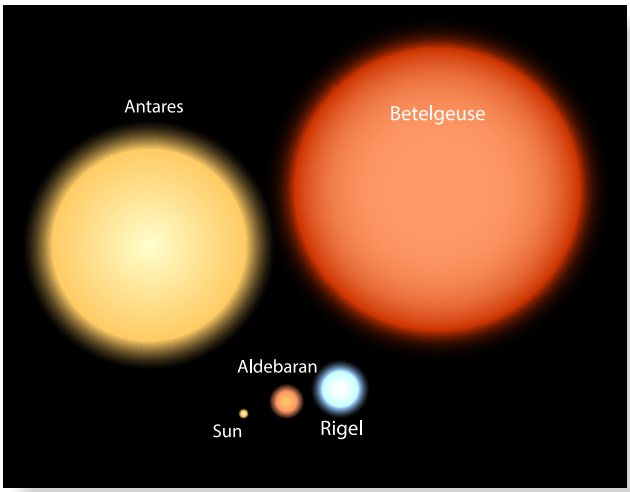
5 Holiness is primarily defined as God's infinite "otherness," which is dangerous to the careless.

Starry, Starry Flight

We are now headed for the star Alpha Centauri and settling in for quite a long ride. Though it's the third closest star to Earth (the Sun is the nearest), it's four light-years away.[6] It would take the *Creation Explorer* only 17 minutes to reach the Sun from Earth, but more than eight years will pass before we see Alpha Centauri in our porthole. (Remember, we are going half the speed of light.) So, I hope you brought along a lot of good books to read!

Once we get there, we discover that Alpha Centauri is a star similar to our Sun. It is almost one million miles in diameter. Do you remember our jetliner attempting to fly around Jupiter? Well, it would take the same airplane six or seven months to circle Alpha Centauri once. Of course, it could never survive the star's seething surface temperature of 10,000°F (5,600°C).

There are stars smaller than Alpha Centauri, but many are much grander. Go out on a winter's night in the Northern Hemisphere or a summer evening in the Southern



Hemisphere and locate the constellation Orion. The left leg of Orion is defined by the bright blue star Rigel (pronounced RYE - jul). Rigel is 50 times larger than the Sun. That's big! Now

6 A light-year is the distance light travels in one year or six trillion miles (nine and one-half trillion kilometers).

look to the right shoulder of Orion and you'll see the orange-red supergiant Betelgeuse (pronounced beetle - juice). This star is 700 times the size of our Sun. If our Lord Jesus placed Betelgeuse at the center of the solar system—the orbits of Mercury, Venus, Earth, Mars, and Jupiter would fit inside the star, and we would all be burnt to a crisp! God is great enough to do this (Jeremiah 32:17), but let's thank Him that He doesn't.

Betelgeuse does not appear huge from Earth because it's 520 light-years away. It would take our imaginary spacecraft, the *Creation Explorer*, over 1,000 years to get there. I would like to go, but we simply don't have time right now.

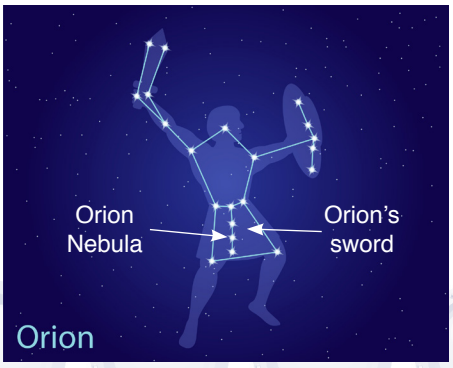
Vast Gas!

We have passed by Alpha Centauri and are now en route to the Orion Nebula. It is one thousand, five hundred light-years from Earth so we will arrive there in about . . . oh, say, 3,000 years. I should have just enough time to explain what a nebula is (just kidding). The word "nebula" is Latin for "cloud"—a nebula is a cloud located in space. But it does not rain in space because a nebula is not like the clouds found on Earth. Instead of droplets of water or ice, a nebula is composed of a vast collection of dust and gas. And when I say vast, I mean immense!

The Orion Nebula spans 24 light-years end to end. That's huge, but remember, God is infinitely bigger (1 Kings 8:27)! This object is so large that it can be seen with the naked eye from Earth, despite its distance. The Orion Nebula shines as the middle "star" of three that form the sword of Orion the Hunter.

When we finally arrive, we behold breathtaking beauty like nothing on Earth. (By the way, we are now over three times as old as Methuselah, who lived 969 years.) Our aging instruments indicate that the nebula is composed of hydrogen, nitrogen, helium, carbon, and oxygen, as well as other gases. Its orange-red color is caused by glowing hydrogen gas, while excited oxygen and nitrogen create blue-green hues—all reflecting Christ's infinite loveliness.

The energy Christ Jesus uses to illuminate the Orion Nebula comes from a kite-shaped group of four stars He placed at the center of the nebula, called the trapezium. As we venture closer to these stars, we discover that the brightest, Theta 1 C, is 100,000 times more brilliant than the Sun. Whoa—that's intense! We're temporarily blinded by the spectacle of Theta 1 C and reminded that Christ "dwells in unapproachable light" (1 Timothy 6:16). If the Lord Jesus can make something like this, I wonder just how dazzling He is . . .



Star Towns & Cities

There are many more *nebulae* (plural of nebula and pronounced NEB - you - lee) in our galaxy, but we do not have time to visit every one of them. Our next destination is a cluster of stars in the constellation Tucana. About half the stars in our galaxy spend their lives all alone. But our omnipotent Lord Jesus ordered the remaining stars into groups of two or more (Psalm 8:3).[7] When two stars orbit around one another they are known as *binary stars*. God also gathered greater numbers into open clusters, containing between 50 and 1,000 stars. Pleiades,[8] found in the

constellation Taurus, is an example of an open cluster possessing hundreds of stars. All told, our Creator has woven approximately 20,000 open clusters into the disk of our galaxy.

Open clusters are impressive to see, but the Father of Lights (James 1:17) created even bigger "cities" of stars that astronomers call *globular clusters*. As I speak, we are headed for the globular cluster 47 Tucanae (too - kah - nee) in the constellation Tucana, the toucan.[9] (Scientists sometimes give things funny names, don't they?!)

47 Tucanae

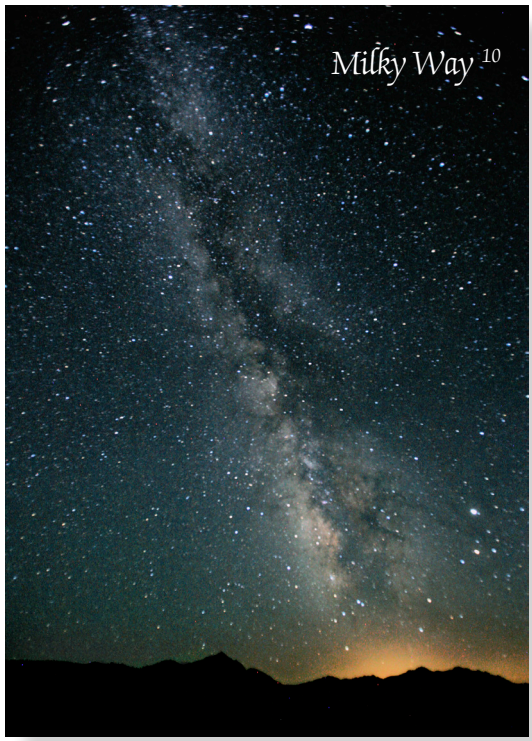
A typical globular cluster contains 10,000 to 1,000,000 suns. Unlike open clusters, Jesus uses intense gravity to mold globular clusters into tight ball-like shapes. Astronomers have identified 150 or so such clusters in our galaxy. I should say *outside* our galaxy; globular clusters are located in a spherical halo *surrounding* the Milky Way. The globular cluster 47 Tucanae is 15,000 light-years from Earth, thus it will take us 30,000 years to get there. Are you starting to see how large the universe is and just how great God's love must be?!

Your lovingkindness, O Lord, extends to the heavens,
Your faithfulness reaches to the skies.
Psalm 36:5

7 Omnipotent means "possessing all power."
8 Pleiades is mentioned in Job 9:9, 38:31, and Amos 5:8.
9 The constellation Tucana is visible only from the Southern Hemisphere.

What a Milky Way!

Wow, 30,000 years is a long time! I'm kind of tired of sitting, aren't you? From the vantage point of the toucan star cluster, we get a pretty good view of our home, the Milky Way Galaxy. If a globular cluster is a "city" of stars, then our spiral galaxy is a "continent" of suns. The Milky Way has between 100 and



200 billion individual stars. It is so immense that it would take us 200,000 years to go from one edge to another! The Earth and the Sun reside in the galaxy's disk, moving about the center at a distance of 26,000 light-years (see *kids' kreation* #120). And two-hundred-and-twenty-five million years are needed for the solar system to orbit our galaxy just once.

The Milky Way Galaxy truly radiates the awesome beauty of our Creator, and I'd like to hang around here, but we have such a long, long way to go to discover how far Jesus traveled to love us. There are other galaxies to explore—the problem is, they're SO far away!

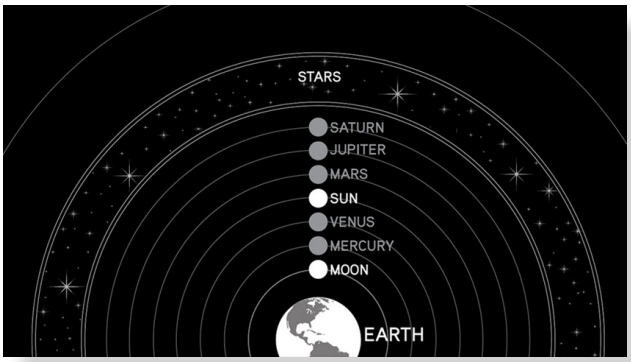
10 The Milky Way we observe in dark skies is only a portion of our galaxy.

"Island Universes"

It's not difficult to see the never-ending grandeur of God as we travel outward toward more and more distant galaxies. Millions and billions of years will be needed to accomplish this, so I hope you're extremely patient. We have a problem though: The food replicator isn't working very well these days. Our meal choices have been narrowed to one—beans with goat cheese. I hope we can hold out.

• • •

Mankind's understanding of the heavens has radically changed over the centuries. The ancient Greeks believed stars were tiny points of light attached to a crystal dome 2,000 miles above the Earth. Five hundred years ago, the universe was thought to be no bigger than the solar system, with all the stars lying just beyond the orbit of Saturn. It wasn't until the 19th century that



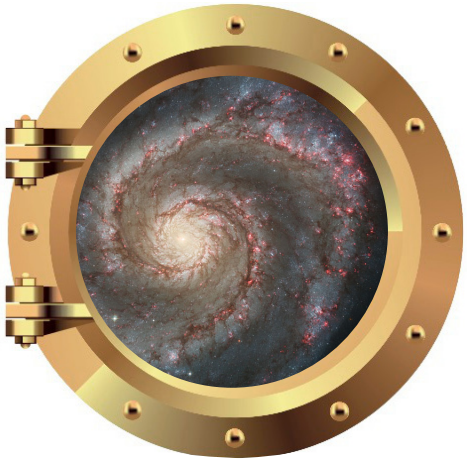
astronomers realized the Sun was one of many stars in the Milky Way Galaxy. Then, in the 1920s, astronomer Edwin Hubble discovered that many of the faint fuzzy objects or "nebulae" seen in his telescope were actually distant galaxies like our own—millions of light-years away.[11] Nine years ago, the Hubble Space Telescope discovered a galaxy 32 billion light-years from Earth. (Thirty-two billion light-years from Earth? God's creative arm is immeasurably great!)

11 These galaxies were coined "island universes."

As technology has improved, we have been privileged to see a more accurate (and mind-boggling!) view of the universe our Lord Jesus has traveled.

• • •

If you look out the porthole, you can spot the Whirlpool Galaxy. It is smaller than our Milky Way, but God painted it with striking pink and blue colors, delightful to behold.



A spiral galaxy is like a titanic pinwheel of stars revolving around the galactic center. There are three different types of galaxies in the cosmos: spiral, elliptical, and irregular.[12] Three out of every four galaxies are spiral in shape and usually blue. On the other hand, Christ painted elliptical galaxies a shade of red.

We have now traveled 15 million light-years and are 30 million years old! I'm not sure we can keep going. We've visited only *one of the closest* "island universes" to Earth—the Whirlpool Galaxy. There may be two trillion more galaxies in the universe, many possessing billions of stars. Most galaxies are hundreds if not thousands of times further from Earth than the Whirlpool Galaxy. I want to continue our exploration, but I'm spent!

Infinite Love

He who descended is the very One
who ascended higher than all the heavens,
in order to fill the whole universe. Ephesians 4:10[13]

Our trip has shown that Jesus fashioned an unbelievably vast universe richly proclaiming His glory (Psalm 19:1). There are at least 200,000,000,000,000,000,000,000 stars that make up the heavens and our Lord knows each of them by name because He possesses infinite wisdom (Psalm 147:4-5). He could have made Creation smaller; after all, the people of the Middle Ages perceived a cosmos that was tiny by today's standards—yet they had no problem believing in God's greatness! Our modern view of the universe should leave no doubt about Christ's love for us, "For great is Your love, higher than the heavens" (Psalm 108:4a).[13]

But what if we continued our trip in the *Creation Explorer,* could we ever realize the full extent of God's love? The truth is, we never would. It's one thing to get a hint of His infinite love with a telescope or spaceship and quite another to encounter it personally. For us to experience His lovingkindness, *God had to come to us* here on Earth (Ephesians 4:9).

In an act of incredible humility, the Second Person of the Trinity took on our form and, as a man, entered a sin-stained world, a journey of infinite distance:

I came forth from the Father
and have come into the world;
I am leaving the world again and going to the Father."
John 16:28

Though God is everywhere, sin has placed a great gulf between Him and us. Jesus paved an infinite path through the heavens (Hebrews 4:14) so we might personally know that God is love (1 John 4:8).

12 Read about galaxies in the ***CREATOR Journal*** Volume 25 Number 4.

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Saiph

2000 light-years

Orion Constellation Model
3-D pattern

Alnilam

Orion Nebula

1500 light-years

Alnitak

Mintaka

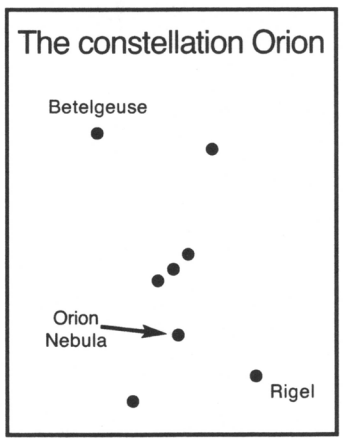
The lengths of each of the wooden dowels should be as follows :

Saiph	9.5 cm
Alnilam	20.5 cm
Alnitak	20 cm
Orion Nebula	15 cm
Mintaka	21 cm
Rigel	11 cm
Betelgeuse	25 cm
Bellatrix	23. 5 cm

Instead of aluminum foil, you may want to attach push-pins to the top of each wooden peg, brush the pin heads with fluorescent paint, and illuminate your model using a "black" or UV light.

1000 light-years

Rigel



Betelgeuse

500 light-years

Bellatrix

For all eternity, we will never see—nor need to see—a greater sacrifice for mankind!

Please don't be mistaken—God's love is not like the "love" of this world. His compassion does not tolerate sin of any kind. God cannot simply overlook man's rebellion because our sins are an infinite offense to His holy nature. And no man will ever be strong enough or clever enough or good enough to earn God's love. God sent His Son into the world to become the payment for our sins (1 Timothy 2:6). Jesus put on human flesh, and though perfect, He died a miserable death on the Cross for the wrongs we committed against His Father (Isaiah 53:5; Romans 3:25).

If you have never seriously considered the love that Christ Jesus has for His beloved, now is the time (Hebrews 3:12-15). Please recognize that you are a sinner—in your heart, you have committed murder, lied, cheated, stolen, and cursed God—we all have (Hosea 4:2; Matthew 5:21-30). If you *repent* of your sins and *believe* in Christ—both gifts of the Spirit—you will be saved. Humbly surrender yourself to Jesus and let Him "wash you entirely clean by His blood."

To Him who loves us and released us from our sins by His blood . . . to Him be the glory and the dominion forever and ever. Amen.
Revelation 1:5b, 6b

This is the only way you can personally know His infinite love. Please don't be deceived—neither our spaceship nor any other religion can do this for you. His love is a free gift you cannot reach on your own.

Christ's care for us is bigger than any star or galaxy—in fact, it is bigger than the universe itself because He, being limitless in glory, sacrificed everything for us. Oh, what great love! Creation longs to see the sons of God revealed (Romans 8:19) so that it might join us in praising Him:

And every created thing which is in heaven and on the earth and under the earth and on the sea, and all things in them, I heard saying, "To Him who sits on the throne, and to the Lamb, be blessing and honor and glory and dominion forever and ever."
Revelation 5:13

Jesus traveled from Heaven to Earth to save us from His wrath against sin, and He touched all of Creation along the way. As a result, He has filled the universe with His beauty, compassion, and holiness (Romans 1:20).[14] There is, therefore, no part of the universe Christ Jesus did not affect, with the heavens everywhere declaring His glory, character, and love (Psalm 19:1)!

So that Christ may dwell in your hearts through faith; and that you, being rooted and grounded in love, may be able to comprehend with all the saints what is the breadth and length and height and depth, and to know the love of Christ which surpasses knowledge, that you may be filled up to all the fullness of God. Ephesians 3:17-19

14 Yet only the Redeemed can see these excellencies of Christ.

HIS CREATION

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